

**Table 7: Summary of Half-Life Data for Perfluorocarboxylic Acids (C-4 to C-10) in Humans and Animals**

PFBA (4)	PFHxA (6)	PFHpA (7)	PFOA (8)	PFNA (9)	PFDA (10)	Notes and reference
<b>Humans</b>						
		1.2 yr mean 0.79 yr median (m&f)	2.6 yr mean 1.7 yr median (m&f)	4.3 yr mean 3.5 yr median (m&f)	12 yr mean 9.2 yr median (m&f)	Zhang et al., 2013; elimination half-life males and older females. Shorter values in young females Exposed population
1.2 - 4.6 days (m)						Chang et al., 2008; biomonitoring of 3M workers – 3 males; not directly exposed to PFBA
1.9 - 6.3 days (m&f) mean = 3 days						Chang et al., 2008; biomonitoring of 3M workers – 7 male 2 female; not directly exposed to PFBA
	32 days geometric mean 14-49 days range					Russell et al., 2013 biomonitoring from ski-wax technicians. Serum decline; elimination kinetics.
			2.3 years (m&f) average			Bartell et al., 2010; population with contaminated drinking water. Decline of initial serum levels
			3.26 years geometric mean 1.03-14.67 years			Brede et al., 2011 exposed population
			2.9 years average (2.5-3.0) and 8.5 years average (5.9-10.3) average			Seals et al., 2011 Two different community half-life values; longer for the community with the lower serum levels
			3.8 years average (1.5-9.1)			Olsen et al., 2009 Occupational cohort; retired workers
<b>Monkey</b>						
			Mean 20.9 days (m) range 13.6-35.3 Mean 32.6 days (f)			Butenhoff et al., 2004 single i.v. dose of 10 mg/kg to 3/sex

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			range 26.8-41.7			
5.3 h ± 2.5 (m) 2.4 h ± 1.7(f)						Chengelis et al., 2009a; single iv of 10 mg/kg to 3/sex
α phase 1.61 h (m) 2.28 h (f) β phase 40 h (m&f)						Chang et al., 2008; single iv of 10 mg/kg
			19.5-20.8 d (m&f)			Butenhoff et al., 2004; 10 or 20 mg/kg/d for 6 months; 3/sex
<b>Rat</b>						
	1.0 hr (m) 0.42 hr (f)					Chengelis et al., 2009a; single iv of 10 mg/kg to 10/sex
	2.2-2.8 hr (m) 2.1-2.7 hr (f)					Chengelis et al., 2009a; 50, 150, or 300 mg/kg/day, 26 days; no differences with dose or day 0 vs. day 26; 6/sex.
	1.7 ± 0.6 hr (m) 0.5 ± 0.1 hr (f)					Gannon et al., 2009 oral, 2 mg/kg to 4/sex
	1.5 ± 0.2 hr (m) 0.7 ± 0.3 hr (f)					Gannon et al., 2009 oral, 100 mg/kg to 4/sex
9 h (m) 2 h (f)						Chang et al., 2008; 30 mg/kg single oral dose; 3/sex
6 h (m) 1 h(f)						Chang et al., 2008; 30 mg/kg single iv dose; 3/sex
			30.6 d (m) 1.4 d (f)			Tatum-Gibbs et al., 2011; single oral dose of 1, 3, or 10 mg/kg; 3/sex
	0.10±0.05 d (m) 0.05±0.01 d (f)		5.63±1.20 d (m) 0.08±0.03 d (f)	29.57± 2.28 d (m) 2.44 ±0.41 d (f)	39.92±8.62 d (m) 58.57±5.84 d (f)	Ohmori et al., 2003; single iv dose of 48.64 µmol/kg <sub>bw</sub> ; 3/sex
			11.5 d (m) 3.4 h (f)			Kemper, 2003; single oral dose of 0.1 mg/kg
			4.8 d (m)			Gibson and Johnson, 1979; single oral dose of 11.4 mg/kg
<b>Mouse</b>						
13.34 h						Chang et al., 2008; single oral

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(m) 2.87 h (f)						dose – 10 mg/kg; 3/sex
16.25 h (m) 3.08 h (f)						Chang et al., 2008; single oral dose – 30 mg/kg; 3/sex
5.22 h (m) 2.79 h (f)						Chang et al., 2008; single oral dose – 100 mg/kg
				34.3-228 d (m) 25.7-68.8 d (f)		Tatum-Gibbs et al., 2011; single oral dose of 1 or 10 mg/kg; 4/sex
			21.7 d (m) 15.6 d (f)			Lau et al., 2009; single oral dose of 1 or 10 mg/kg
No data were identified for PFPA.						